



IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Applicant: Josh Nemeth
Serial No: 09/857,133
Assignee: Note Printing Australia Limited
Filed: July 5, 2000
For: Security Document with Raised Intaglio Printed Image
Examiner: Tamra L. Dicus
Group Art Unit: 1774

Honourable Commissioner of Patents and Trademarks
Washington DC 20231

DECLARATION OF BRUCE ALFRED HARDWICK

I, Bruce Alfred HARDWICK, of 5 Scanlons Road, Wandong, Victoria 3758, Australia, do solemnly and sincerely declare as follows:

1. I am employed as Technical & Business Development Manager by Note Printing Australia Limited. I have been employed by Note Printing Australia Limited since July 1983.
2. I am an Associate of the Sydney Technical College (Chemical Engineering with credit) and I have a First Class Honours Degree – Bachelor of Engineering from the University of New South Wales. I was subsequently awarded a Ph.D in Chemical engineering from the University of New South Wales.
3. Prior to becoming a Technical & Business Development Manager I held the positions of Production Manager and Research & Development Manager at

Note Printing Australia Limited. During my time at Note Printing Australia Limited, I have been heavily involved in research, development and production relating to security documents, particularly banknotes, and also polymer substrates and various security devices and security inks for use in the manufacture of banknotes. Note Printing Australia Limited is a wholly owned subsidiary of the Reserve Bank of Australia and was the first banknote printing authority in the world to produce banknotes manufactured from a polymer substrate, as opposed to banknotes printed on paper. I have presented a number of papers on security documents and security features, including security inks, at International Conferences. I am also an inventor named in several patents. I am Chairman of the Four Nations Advanced Counterfeiting Deterrent Group, and Acting Chairman of the Intaglio Research Group.

4. My current duties include overseeing research projects and supervising the development of new security features for use in the manufacture of banknotes. I am aware of the research and development program which led to the preparation and filing of US Patent Application Serial No. 09/806,966, now US Patent No. 6,605,338, which has been assigned to Securrency Pty Limited entitled "Security Document or Device having an Intaglio Contrast Effect". Securrency Pty Limited is a joint venture between the Reserve Bank of Australia and UCB SA, a Belgian company that manufactures polymer substrates for use in the manufacture of Australian banknotes produced by Note Printing Australia Limited.
5. I am also aware of the research and development program which led to the preparation of filing of US Patent Application Serial No. 09/857,133. I have closely examined this patent application and I am familiar with the content of the patent application and the prosecution history of the application.



6. US Patent No. 6,605,338 issued on 12 August 2003 and relates to a security document having an intaglio contrast effect. Claim 1 of that US patent application claims:

"1. A security document including a substrate, a smooth highly reflective layer applied to said substrate and having a specular reflectance percentage of at least 60, and a raised printed image applied to said reflective layer by a printing process, at least part of said raised printed image having a height of at least 10 μm , said printed image being printed using ink of a hue having a chroma value of at least 30 chroma units and/or a lightness of at least 50 lightness units."

A copy of US Patent No. 6,605,338 is annexed to this Declaration as Exhibit 1.

7. Essentially, the invention claimed in US Patent No. 6,605,338 involves the application of raised lines or dots of a highly coloured intaglio printing ink to a background of a smooth highly reflective layer to form a raised printed image which produces an intaglio contrast effect. The fact that the intaglio printing ink is highly coloured is brought out in claim 1 by the wording: "said printed image being printed using ink of a hue having a chroma value of at least 30 chroma units and/or a lightness of at least 50 lightness units".
8. The visual effect produced by applying the highly coloured intaglio ink to a highly reflective background is a contrast effect such that when the printed image is viewed at an angle perpendicular to the light source, the highly reflective background, e.g. a gold coloured reflective patch, appears very bright whereas the part of the image formed by the highly coloured intaglio ink, e.g. a red colour, does not appear very bright in comparison to the gold background. However, when the viewing angle changes from the perpendicular through oblique viewing angles, e.g. when the security

document is tilted, the gold reflective metallic patch becomes duller, and the colour of the high chroma intaglio ink, e.g. red, increases in intensity. The image formed by the highly coloured (red) intaglio ink is visible at all viewing angles, although at oblique viewing angles the red colour is much more intense and brighter than when the image is viewed at a substantially perpendicular angle to the surfaces of the substrate. A sample of a document having an intaglio contrast effect in accordance with US Patent No. 6,605,338 is annexed to this Declaration as Exhibit 2.

9. Claim 1 of US Patent Application Serial No. 09/857,133 claims:

"1. An article comprising a substrate, a smooth highly reflective layer applied to said substrate and having a reflectivity of at least 60 gloss units, and a raised print image on said reflective layer, at least part of said raised print image having a height of at least 10 microns, said raised print image formed by ink having properties which render the raised print image transparent or translucent while causing scattering of the light reflectance and transmittance such that the ink reflects light in a partially specular manner, wherein the raised print image is visible at angles within a window of high reflection and substantially non-detectable outside the window.

10. ~~Essentially, the invention of US Patent Application Serial No. 09/857,133~~ involves the application of raised lines or dots of a transparent or translucent intaglio printing ink to a background of a smooth highly reflective layer to form a raised printed image which produces a disappearing effect. A transparent intaglio ink has no colour and a translucent intaglio ink has virtually no colour and extremely low chroma and lightness values, well below the high chroma and lightness values of at least 30 chroma units and 50 lightness units specified in US Patent No. 6,605,338.

11. The transparent intaglio disappearing effect produced by applying a transparent or translucent intaglio ink to a highly reflective background, e.g. gold ink, is quite different from the intaglio contrast effect of US 6,605,338. When the security document of the subject application is viewed at a range of angles equal or close to the angle of incidence of a point light source, referred to a "window of high reflection" in the specification of US Patent Application Serial No. 09/857,133, the highly reflective gold background appears a bright gold colour, whereas the part of the printed image formed by the raised lines or dots of the transparent or translucent ink are visible owing to a specular scattering of light caused by the raised transparent lines or dots. However, when the document is viewed from a viewing angle outside the "window of high reflection", e.g. when the security document is tilted, the gold background has a dull appearance which does not contrast with the specular reflectance caused by the printed lines or dots of the transparent or translucent intaglio ink, and so the image formed by those raised lines or dots of transparent or translucent ink is essentially invisible. A sample of a document having a transparent intaglio disappearing effect in accordance with US Patent Application No. 09/857,133 is annexed to this Declaration as Exhibit 3.
12. The differences between the invention of US Patent Application No. 09/857,133 and US Patent No. 6,605,338 may be summarised as follows:
- (a) US SN 09/857,133 has a raised image printed from transparent or translucent intaglio ink on a highly reflective background. The transparent or translucent ink is substantially without colour and has very low chroma and lightness values. The raised printed image is a disappearing image which is visible within a small range of angles and invisible at others.
- (b) US Patent No. 6,605,338 has a raised image printed from a highly coloured intaglio ink on a highly reflective background. The highly coloured



intaglio ink has high chroma and/or lightness values. The raised printed image contrasts with the highly reflective background and is visible at all angles. At a substantially perpendicular viewing angle the highly reflective background, e.g. gold, appears bright and the highly coloured intaglio ink, e.g. red appears dull, and at oblique viewing angles the reflective gold background appears dull and the colour of the intaglio ink, e.g. red, intensifies to contrast with the dull background.

13. In view of my comments above, I believe the invention claimed in US Patent Application Serial No. 09/857,133 is a patentably distinct invention from that of US Patent No. 6,605,338.

I hereby declare that all statements made herein of my own knowledge, are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that wilful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such wilful false statements may jeopardise the validity of the application, and any patent issuing thereon, or any patent to which this verified statement is directed.

Declared at Craigieburn, Victoria this 31st day of October 2003

Bruce Alfred Hardwick
Bruce Alfred HARDWICK